

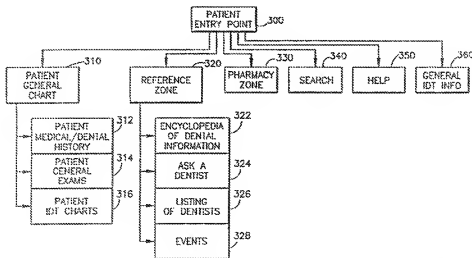
(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
25 October 2001 (25.10.2001)

PCT

(10) International Publication Number  
WO 01/80117 A1

- (51) International Patent Classification: **G06F 17/60**
- (21) International Application Number: **PCT/US01/11215**
- (22) International Filing Date: **6 April 2001 (06.04.2001)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
09/551,119 17 April 2000 (17.04.2000) **US**
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- (81) Designated States (national): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, ES, FI, GB, GD, GH, GI, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SE, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.**
- (84) Designated States (regional): **ARIPO patent (GH, GM, KB, LS, MW, MD, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).**
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- Published:  
with international search report

[Continued on next page]

(54) Title: **METHOD AND SYSTEM FOR MAINTAINING COMPUTERIZED DENTAL RECORDS**

(57) Abstract: The present invention is a method and system for managing patient dental records in a computer database via a global computer network. A dentist enters at least one patient dental record into the database via the global computer network and designates other users who may access the record. After an initial authorization, a patient user is directed to the home page of the dentist who provided the patient authorization code to the patient user. From this dentist home page, the patient user may enter any of several different section, including Patient General Chart (310), Reference Zone (320), Pharmacy Zone (330), Search (340), Help (350), and General IDT Information (360). Once the patient enters the Patient General Chart (310) section, the patient user may access various areas relating to his or her dental record, such as Medical/Dental History (312), General Exams (314), and IDT Charts (316).



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

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## METHOD AND SYSTEM FOR MAINTAINING COMPUTERIZED DENTAL RECORDS

### FIELD OF THE INVENTION

The present invention relates generally to health-related electronic  
5 information systems and methods, and more particularly to systems and methods  
for electronic maintenance of patient health records accessible from remote  
locations via a global computer network.

### BACKGROUND

The health care industry continuously evolves to provide patients  
10 with more efficient care. For example, the standard of care has progressively  
shifted from undisciplinary care to multidisciplinary care, and further to  
interdisciplinary care in which teams of coordinated doctors, each with specific  
roles, provide patient care over a time continuum. This latter form empowers  
both the patient and doctor to fully explore and consider both the complete  
15 diagnosis and optimum treatment plan for maximum results.

The implementation of interdisciplinary care requires a  
well-orchestrated team. Due diligence is required for accurate and precise  
records, diagnoses, and treatment planning among team members. In addition,  
full patient cooperation, understanding, and time is necessary to complete the  
20 team. The difficulty in coordinating a team of doctors and a patient has resulted  
in a less than optimum percentage of doctors yet participating in interdisciplinary  
care practices.

Effective interdisciplinary care further requires proper transfer of  
information and consultation between and among patients and their doctors. This  
25 currently requires a physical coming together of all relevant parties. Appropriate  
information and records are made available for each individual consultation by  
way of mail or by hand, often with duplication of time, travel, labor, and

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materials. The steps of collecting relevant patient data, disseminating it among providers, allowing collective review, individual rendering of decisions, individual informing of the patient, and ultimate confirmation of treatment regimens, have thus been laborious at best. The time and cost of such sequencing, especially for complex cases where this is most needed, may preclude either patient or doctor from fully pursuing the proper interdisciplinary approach.

### SUMMARY OF THE INVENTION

The present invention provides a method and system for maintenance of patient records and information in a computer database via a global computer network. A computer database having one or more patient records, each record of which has one or more fields, is created and is accessible via the global computer network for viewing and editing by entry of the appropriate authorization code by a user.

The present invention provides a portal for both healthcare consumer and professional. The invention provides information storage, access, and dissemination, and interconnectivity between patients and doctors. Databases housed and managed within a central, controlled environment allow access and manipulation by authorized users via a global computer network. Multiple providers from different locations are able to simultaneously access a patient database for team treatment planning and collaboration. Its capability includes not only instant dissemination of increased information but seamless, simultaneous data base access from multiple locations.

The invention preferably has distinct entry points for the users accessing the site, including a dental member entry point, a patient entry point, and a general entry point. Each entry point provides access to several different database areas.

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The dentist entry point provides for entry of new patient records, access to and edit of patient dental records entered by that dentist, and input of new entries into these patient dental records. Through the member dentist entry point, patient records and information may be disseminated to and accessed by other health professionals at the discretion of the dentist who entered the patient information. The dentist entry point further provides access to other databases of interest to dental professionals, such as an interactive diagnosis and treatment database, practice management topics, continuing education subjects, and Interdisciplinary Dentofacial Therapy (IDT) information.

The patient entry point allows access by a dental patient to view or edit selected portions of his/her own dental record. The patient entry point further allows access to databases relating to dental topics, such as dental hygiene and care, common dental disorders, and dental treatments.

The present invention also provides for dissemination of dental-related information from the general entry point.

Access through the various entry points is determined based on the access code entered by a user of the invention. The dentist will provide a patient authorization code to each of his patients for whom the dentist has input a patient dental record into the database. This authorization code will enable the patient to access the patient dental record associated with that patient and to access the other databases available through the patient entry point.

Entry of the dentist authorization code will enable the dentist to access all patient dental records input into the database by the dentist. The dentist will further be able to access the other databases available through the dentist entry point.

General visitors and dentists who may desire further information regarding the features of the invention access selected databases and other features through the home page without the entry of an authorization code.

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While the invention is described in relation to a preferred embodiment relating to the provision of dental care and providers of dental care, the invention is not limited to use in the dental industry and has broad applicability in any health care profession.

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### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram of the member dentist entry point of the present invention;

Fig. 2 is a block diagram of the patient area of the member dentist entry point of the present invention;

Fig. 3 is a block diagram of the IDT area of the member dentist entry point of the present invention;

Fig. 4 is a block diagram of the practice management area of the member dentist entry point of the present invention;

Fig. 5 is a block diagram of the continuing education area of the member dentist entry point of the present invention;

Fig. 6 is a block diagram of the reference area of the member dentist entry point of the present invention;

Fig. 7 is a block diagram of the patient entry point of the present invention;

Fig. 8 is a block diagram of the dental professional area of the general entry point of the present invention; and

Fig. 9 is a block diagram of the general visitor area of the general entry point of the present invention.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention provides a method for medical professionals to manage patient records by remote access via a global computer network. A database of patient records is maintained, housed, and managed within a central, controlled environment remote from the location of the medical professional. Remote access to the records is provided by entry of a unique authorization code via the global computer network.

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Each patient record has at least one field of information. Preferably, each patient record has at least one field for image data and at least one field for text data. Also preferably, each patient record corresponds to a single patient. At least one entry of information into at least one field is made  
5 into the record. Subsequent entries into the record may also be made.

A preferred embodiment of the present invention relates to management of patient dental records. A preferred embodiment utilizes a web site on the internet as the access point for the patient dental records. It will be recognized by one of skill in the art that other embodiments may be practiced that  
10 do not depart from the spirit and scope of the invention as defined and set forth in the claims.

In a preferred embodiment, a user accesses a general entry point, preferably a general home page on the internet, which provides several choices, including a dentist entry point 100 (fig. 1) and a patient entry point 300 (Fig. 7).  
15 Other choices from the general home page may include access to a visitor area, access to a dental professional area, an information area, a dentist search area, and an application to change the user's status to allow access to areas of limited access.

Figure 1 illustrates the architecture of the dentist entry point 100.  
20 Upon entry to the dentist entry point 100, a dentist user is prompted and required to enter a predetermined dentist authorization code. This dentist authorization code is assigned to the dentist when the dentist joins the web site. The dentist authorization code is unique for each dentist accessing the web site. The dentist may also allow employees or agents of the dentist to use the dentist authorization  
25 code to access the dentist entry point. These would include receptionists, dental assistants, and dental hygienists employed in the dentist's office. This would allow employees or agents of the dentist to assist in the management of dental



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patient records under the supervision of the dentist. Reference herein to "dentist" includes the employees or agents of the dentist. Additionally, the dentist may establish separate authorization codes for the dentist's employees or agents to limit the access of the employee or agent to selected portions of the records. The use of these authorization codes, and the codes provided to the patients, as discussed below, ensures that only authorized users have access to dental patient records or portions thereof. Thus, the confidentiality and security of access to patient dental records may be maintained.

After the dentist authorization code is entered, the dentist user accesses a dentist home page (not shown) from which the dentist may access other areas of the web site. The dentist home page may be customized by the dentist. From there, the dentist may access any one of several different sections—Patients 110, IDT Team Section 130, Practice Management 140, Continuing Education 150, Group Purchasing 160, Classified Ads 161, Search 170, Help 180, and Reference Zone 200. It is within the spirit and scope of the invention for additional sections to be made available, and it is to be recognized that not all of the listed sections are required by the invention as defined by the claims.

Figure 2 illustrates the architecture of the patient 110 section of the preferred embodiment. Once the dentist has entered the patient 110 section, he or she may access any of the following areas:

Patient Scheduling 111,  
Patients General Charts 112,  
Medical/Dental History Charts 113,  
General Exams 114,  
Prescriptions 115,  
Referral Slip/Extraction Slip 116,

- Diagnosis and Treatment Guide 117,  
Lab Request and Tracking 118,  
IDT Specific Charts and Records 119,  
IDT Workflow/Application 120, and  
5 E-Statements for Billing 121.

In the Patient Scheduling 111 area, the dentist may input, view, confirm, or modify daily appointments by patients. The dentist may also e-mail reminders to patients regarding upcoming appointments, respond to e-mails from patients with appointment requests, and automatically or manually e-mail  
10 notifications of needed appointments to patients.

The information in this area may be viewed in a variety of ways, including by day, by week, by patient, and by name. This allows the dentist to actively and effectively manage his appointment calendar.

In the Patients General Charts 112 area, the dentist inputs and  
15 maintains general information regarding the patient, such as personal information and insurance information. This information is generally provided by the patient, but may also be provided from other sources. As discussed below, this information may also be edited by a patient user accessing the database.

In the Medical/Dental History Charts 113 area, the dentist inputs  
20 and maintains information regarding the medical and dental history of the patient. This information may be provided from the patient or from other medical and dental professionals who forward the information to the dentist, either electronically or otherwise.

In the General Exams 114 area, the dentist inputs diagnostic and  
25 treatment information currently included in hard copy records maintained by dentists of the general examinations of their patients. This includes information

regarding results, observations, diagnoses, treatments, prescriptions, etc.  
regarding the examinations of the patient.

The diagnostic and treatment information may include digital  
photos and x-ray images. Image data of any format may be input and is  
5 supported. Each patient dental record will have at least one text field and at least  
one image field.

Diagnosis and treatment information may be entered by uploading  
documents generated by local word processing programs, by freehand typing  
directly into the database, or by selecting one or more predetermined diagnostic  
10 and treatment options available from a menu of diagnostic and treatment options  
provided to the dentist via a drop-down menu. The data entry may also be  
provided via a graphical or tabular interface, for example, as if the dentist were  
making entries into a dental and periodontal examination chart. In other words,  
the data input screen may be made to resemble the dental and periodontal  
15 examination chart typically used by the dentist, with different drop-down menus  
for each location in the chart in which an entry may be made.

Once an entry is made into the General Exams 114 area, such an  
entry may be made permanent and unable to be altered. This will ensure that  
diagnosis and treatment information is not subsequently altered or deleted, such  
20 that a record of the history of diagnoses and treatment of the patient is  
incomplete. As discussed, below, a backup record of selected entries to a patient  
dental record may also be generated to ensure permanence of record entries.

An entry into the History 113 area may be automatically made  
when an entry is made into the patient dental record through the General Exams  
25 114 area.

Each entry or modification into the patient dental record is also  
provided with a date stamp to reference when the entry or modification was

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made. The entries into the patient dental record may be sorted and displayed by date. Further, the entries may be provided with a version number, which is discussed in more detail below.

5 In the Prescriptions 115 area, the dentist may enter information regarding medications prescribed to the patient. This area may also be used for actual entry of prescriptions for electronic transmittal to an approved pharmacy. An entry into the History 113 area may be automatically made when an entry is made into the Prescriptions 115 area.

10 In the Referral Slip/Extraction Slip are 116, the dentist may enter information regarding other medical or dental professionals to whom the dentist is referring the patient for additional evaluation, diagnosis, or treatment. This area may be used to make referrals via the global computer network with e-mail notifications to the patient and the relevant doctors of referral. An entry into the History 113 area may be automatically made when an entry is made into the  
15 Referral 116 area.

In the Diagnosis and Treatment Guide 117 area, the dentist may engage an interactive diagnosis and treatment guide to identify potential diagnoses and treatments that a dentist may wish to consider that correlate to the symptoms of a patient. The dentist enter answers to a series of questions relating  
20 to observations, visual signs, or symptoms (collectively "symptoms"). The symptoms may be those actually observed by or related to the dentist, or those obtained from the record data. As with the case of record entry, as discussed above, the answers or questions may be displayed and input via graphical or tabular representations, such as a dental and periodontal examination chart.

25 The dentist enters one or more symptoms from a predetermined list of symptoms. Preferably, these symptoms are available to the dentist via one or more drop-down menus. After the dentist has entered the symptoms, an

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automatic search of the diagnosis and treatment guide database is conducted to identify records in the diagnosis and treatment database to the dentist that match the combination of symptoms entered.

Then one or more questions are automatically generated for the dentist to answer based on the diagnosis and treatment records found. The dentist enters one or more answers to these questions from a predetermined list of answers made available to the dentist, preferably via a drop-down menu. Then the diagnosis and treatment guide database is automatically searched for one or more diagnosis and treatment records matching the combination of symptoms and answers entered. The resulting diagnosis and treatment records are displayed to the dentist. If the dentist desires to continue to narrow the matching records, the dentist may answer additional questions to generate another automatic search for matching records. The resulting matching diagnosis and treatment records may then be consulted by the dentist in determining the diagnosis and plan of treatment for the patient.

In the Lab Request and Tracking 118 area, the dentist enters and maintains information relating to orders to laboratories. This area may be used for electronic ordering of laboratory goods and services from approved laboratories. This area may also be used to verify the status of laboratory appliances and equipment.

In the IDT Specific Charts and Records 119 area, the dentist enters and maintains information for patient charts and records that are specific to IDT team treatment. This includes information regarding the members of the IDT team and electronic correspondence between IDT team members.

In the IDT Workflow/Application 120 area, the dentist and the IDT team members enter and maintain the information required to pursue IDT

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treatment for the patient. The IDT team treatment process is discussed in further detail below.

In the E-statements for Billing 121 area, the dentist enters and maintains information relating to the billing of the charges for the services rendered to the patient. This includes billings made to any insurance companies as well as billings directly to the patient. Further, a patient's payment schedule and payment history are maintained. This includes maintenance of on-line account statements, provision for direct electronic billing to insurance companies, and automatic mailing, via electronic or hard copy mail, of overdue notifications.

The Patient 110 section also enables the dentist to communicate with the patient. This may be effected via the patient's e-mail address, by an area established within the patient 110 section for leaving messages for the patient in a field associated with the patient dental record, or any other suitable method. Likewise, the patient may also communicate with the dentist in a like reciprocal manner. The Patient 110 section may also include the capability to maintain and access threaded topics. Threaded topics are those that have the same or similar subject matter. This would enable a dentist or a patient to see only messages related to a particular topic, for example, those related to treatment regarding a particular tooth.

The dentist may choose to maintain the remote access during business hours, or may choose to terminate access at any time. Access to the web site is available at any time during the day or night, and the dentist may choose to access the web site from home as well as from the office. A feature of this invention is that the patient dental records are available for access 24 hours a day, seven days a week, from any location with access to the internet. This can improve the efficiency of the dentist by enabling access to patient dental records,

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and the other features of the invention, during times when the dentist is not physically located in the office.

5 Once a patient dental record, or entries within a patient dental record, is identified as matching the input text, this patient dental record may be retrieved, edited, or new entries made, as discussed below. After completion of the access to the patient dental record, the record is again stored into the database in its modified form.

10 Preferably, each time an entry is made to a record, selected previous entries to the record are copied and stored separate from the active database as a permanent backup record. Preferably, the selected previous entries include diagnostic and treatment entries. The backup record or the new entry or both are provided with a sequential version number which identifies the number of times a record is backed up or new entries are made the record. This enables a dentist, for example, to identify if there are new entries to be reviewed based on  
15 the version number of the record in the active database, provides for storage of a permanent backup copy of the record for security purposes, and may aid in the coordination of treatment with other dental professionals. A dentist may also request that a hard copy of the active record, backup record, or portions thereof be printed and provided for physical storage.

20 Periodically, the record, or selected entries or portions thereof, may also be archived to a remote location by any method practicable, such as tape backup storage, removable electronic disk storage, etc. This will provide additional storage space for new records or new entries, while preserving the history of the existing records.

25 Figure 3 illustrates the architecture for the IDT Team Section 130 of the preferred embodiment. Once the dentist has entered the IDT Team Section 130, he or she may access any of the following areas:

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5 IDT Team Directory 131,  
IDT Club Directory 132,  
IDT Center Directory 133,  
Calendar of IDT Meetings 134,  
IDT Discussion Board 135,  
IDT Conference 136,  
Clinical Pearls 137,  
Custom Forms for Case Management 138, and  
Custom Defined Protocols 139.

10 IDT entails collaboration of several different dental or medical  
professionals to coordinate a treatment plan according to the symptoms of the  
patient. Often this collaboration requires coordination of the timing of treatments  
from different disciplines to maximize the benefit to the patient. This  
collaboration is accomplished via regimental sequencing of diagnostic and  
15 treatment planning procedures.

While the features of the present invention are discussed in terms  
of IDT, it is to be recognized that the invention includes within its scope other  
coordinated treatment efforts, study clubs, collaboration among two or more  
dental care professionals, and other interactions between dental care  
20 professionals, and is not limited to implementation of IDT programs. A preferred  
embodiment of the present invention empowers dentists to utilize  
interdisciplinary dentistry through the IDT program.

The IDT team members are assembled and interact before a course  
of treatment is commenced. The cooperation and advance planning by the team  
of health care professionals results in maximizing the treatment benefit and  
25 shortening of the treatment time by obtaining input from and coordinating the  
efforts of all team members according to an agreed-upon schedule of treatment.



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In order to effectively coordinate the treatments and maintain the regimental sequencing of procedures, interaction and communication between team members is essential. To effect this interaction and communication, each patient under treatment by an IDT team will have IDT-related information available to team members in the IDT Specific Charts/Records 119 and IDT Workflow/Application 120 areas of the Patient 110 area. The specific information available in these areas will depend upon the particular circumstance for the patient in question, but will ordinarily conform with the general provisions of IDT team treatment as established by The Academy of Interdisciplinary Dentofacial Therapy.

Throughout the country, there are many members of The Academy of Interdisciplinary Dentofacial Therapy and several established IDT clubs. The IDT Team Section 130 provides for coordination and information relating to IDT clubs. The dentist may access the areas in the IDT Team Section 130 for information regarding and in support of this program.

Figure 4 illustrates the architecture for the Practice Management 140 section of the preferred embodiment. Once the dentist has entered the Practice Management 140 section, he or she may access any of the following areas:

Staff Training 141,  
Staff CE/Certification 142,  
Payroll 143,  
Help Wanted 144, and  
Marketing 145.

The areas within the Practice Management 140 section all relate to assisting the dentist in managing his/her practice. Within this area, the dentist may enter and maintain information regarding the business aspect of his/her

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- practice. The Practice Management 140 section contains information designed to assist the dentist and allows for record keeping relating to his/her office. It will be evident to one with ordinary skill in the art that areas in addition to or omitted from those listed in the preferred embodiment do not depart from the spirit and scope of the invention as defined in the claims.

- Figure 5 illustrates the architecture for the Continuing Education 150 section of the preferred embodiment. Once the dentist has entered the Continuing Education 150 section, he or she may access any of the following areas:
- 10 Learning Space® 151,  
Case Study of the Month 152,  
Roundtable Discussions 153,  
Minutes and Agenda 154,  
Membership Status Reports 155,
  - 15 Bulletin Board 156,  
Discussion Board 157,  
Calendar of Study Group (SG) Meetings 158, and  
Track CE Credits 159.

- Every state has requirements regarding continuing education for dentists. Additionally, it is good practice for a dentist to maintain knowledge regarding current events and new developments in the dental industry. Further, dentists routinely exchange knowledge and continue study to refine their knowledge regarding particular dental-related subjects.

- The Continuing Education 150 section provides a section for the dentist to monitor continuing education topics, including viewing a calendar of continuing education events, tracking of the continuing education credits acquired

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by the dentist, and actual discussion of dental topics with other dental professionals.

5           The Search 170 section, shown in Figure 1, allows the dentist user to search the entire web site for text matching an input text. This search may also be narrowed to search only patient dental records or to search one or more particular fields within a patient dental record. Thus, a dentist user could search a patient record to identify and retrieve all entries dealing with a particular subject matter (e.g., orthodontia) or that were for a certain date or that related to a particular tooth.

10           Figure 6 illustrates the architecture for the Reference Zone 200 section of the preferred embodiment. Once the dentist has entered the Reference Zone 200 section, he or she may access any of the following areas:

Consultation Services 201,  
Ask an Expert 202,  
15   Encyclopedia of Dental Information 203,  
Listing of Dentists 204,  
Events 205,  
Pharmacy Zone 206,  
Dental Links 207  
20   Speakers 208,  
Real Time Chat 209,  
Dental Labs 210,  
Wealth Management 220, including Investments 221, Retirement and Estate Planning 222, Accounting 223, Legal 224, and Architectural 225, and  
25   Practice Transition 230, including Selling/Buying 231, Associates 232, Site Leasing 233, and Site Ownership 234.

The Reference Zone 200 section provides areas for dentists to locate and acquire information regarding topics not provided for in other sections and areas of the web site. The information provided in this section may be provided by dentists who participate in the web site or by external content providers. As in the other areas and sections, access to the various areas in this section may be controlled via the authorization code provided to the user or by the author of the information in each area.

Figure 7 illustrates the architecture of the patient entry point 300. Upon entry to the patient entry point 300, the patient user is prompted and required to enter a predetermined patient authorization code or patient password. The predetermined patient authorization code is provided by the dentist who has entered the dental record associated with that patient into the dental record database, as is discussed in more detail below. Upon the first entry of the patient authorization code, the patient may be directed to an on-line medical information release authorization to authorize the member dentist to maintain digital dental records.

After this initial authorization, the patient user is directed to the home page (not shown) of the dentist who provided the patient authorization code to the patient user. From this dentist home page, the patient user may enter any of several different sections, including Patient General Chart 310, Reference Zone 320, Pharmacy Zone 330, Search 340, Help 350, and General IDT Information 360.

Once the patient user enters the Patient General Chart 310 section, he or she may access various areas relating to his dental record, such as Medical/Dental History 312, General Exams 314, and IDT Charts 316. This area also includes patient personal information which may be changed by the patient, such as address, telephone number, and insurance information. These areas may

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or may not be the same areas as those accessible via the dentist entry point 100 and identified as Patient General Charts 112, Medical/Dental History Charts 113, General Exams 114, and IDT Specific Charts/Records 119. The areas accessible by the patient user will have information that is also present in the areas  
5 accessible by the dentist user, but the patient user will generally not have access to all of the information accessible by the dentist user.

The patient user will be able to add or modify selected entries in the patient General Chart 310 section, but will only be able to view other information in this section. The dentist who enters the dental record into the  
10 database and provides the patient authorization code will initially determine the information accessible and modifiable by the patient user. As additional entries are made into the patient dental record, the author of the entry has the capability to enable the patient user to access or to modify the information. As can be expected, there is a desire for the patient user not to have the capability to modify  
15 information relating to, for example, diagnosis and treatment of the patient. However, it is advantageous to allow the patient user to view this information.

The patient may also be able to correspond directly with the dentist using a message area via the patient entry point 300 in order to ask questions, schedule an appointment, request a prescription from the dentist, or  
20 request information. This may be integrated into the patient General Chart 310 section, or in another section or area of the patient entry point 300.

Upon entry to the Reference Zone 320 section, the patient user may access various areas relating to general dentistry topics, including Encyclopedia of Dental Information 322, Ask a Dentist 324, Listing of Dentists  
25 326, and Events 328. These areas may or may not be the same areas as those accessible via the dentist entry point 100 and identified as Reference Zone 200, Encyclopedia of Dental Information 203, Listing of Dentists 204, and Events 205.

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The Encyclopedia of Dental Information 322 includes information regarding dental self-care topics and regarding dental treatment topics. It will be apparent that other areas may also be include in this section, such as areas providing for external links to dental-related content on different web sites.

5           The patient user will also have access to Pharmacy Zone 330, Search 340, Help 350, and General IDT Information 360 sections. These sections may or may not be the same areas as those accessible via the dentist entry point 100 and identified as Pharmacy Zone 206, Search 170, and Help 180.

10           The patient user may remotely access and terminate the remote access to the web site at any time. Because the web site is available 24 hours a day and seven days a week, the patient user may access his or her patient dental record and the other features of the invention at any convenient time, regardless of the office hours of the dentist.

15           Figure 8 illustrates the architecture of the dental professional entry point. Once the general home page 400 is accessed by the user via the internet, the dental professional who is not a member may access sections including a Tour 401 section, a How To Register 402 section, and an Information About Web Site 410 section.

20           The Tour 401 section provides a tour of the features of the web site to allow potential member dentists to evaluate the suitability of use of the web site with their individual practice. The How To Register 402 section provides information regarding how to become a member and have access to the features discussed above for those who have been provided a dentist authorization code.

25           The Information About Web Site 410 section includes How Will It Benefit Me 412 and Member Directory 413 areas to further enable potential member dentists to evaluate the suitability of use of the web site with their

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individual practice and identify other dentists who are members and are taking advantage of the features.

5           The Information About Web Site 410 section also includes a What Is IDT 420 section. This section includes information about IDT specifically designed for dentists who are not yet familiar with IDT. The What Is IDT 420 section includes an IDT 430 section, having What Is IDT 431, How Do I Become an IDT Member 432, More About IDT 433, Why IDT 434, FAQ (Frequently Asked Questions) 435, Member Directory 436, IDT Bulletin Board 437, and Your Future in IDT 439 areas. These areas provide general information  
10       regarding IDT.

          The What Is IDT 420 section further includes an IDT Education 440 section, having What is an IDT Study Group 441, Chapter Directory 442, Case of the Month 443, Continuing Education 444, and Speakers Bureau 445 areas. These areas provide information regarding how the IDT process is learned  
15       and promulgated throughout the dental industry.

          The What Is IDT 420 section further includes an IDT In Practice 450 section, having How Do I Practice IDT 451, How Do I Build An IDT Team 452, and IDT Teams Directory 453 areas. These areas provide information about the actual generation, practice, and coordination of IDT teams.

20       The Information About Web Site 410 section is designed to provide the potential member dentist sufficient information regarding the web site and the practice of IDT to enable the potential member dentist to assess the features of the web site. As will be apparent to one of skill in the art, the specific sections and areas may be modified, as well as the specific information provided  
25       within the sections and areas, to reflect many different sets of particular circumstances without departing from the spirit and scope of the invention.

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Figure 9 illustrates the architecture of the general visitor entry point. Once the general visitor accesses the general home page 400 via the internet, the general visitor may access any of several different sections, including General Information 460, Reference Zone 470, Pharmacy Zone 480, Search 485, and Help 490. These sections will enable the general visitor to obtain general information regarding the site and will allow the general user to access a variety of dental-related general information.

Once the general visitor user accesses the General Information 460 section, the user may choose to enter any of the following areas—IDT 461, Sample Patient Chart 462, Dentists Who Practice IDT in My Area 463, Case Study of the Month 464, and FAQ 465. Each of these areas provides the general information indicated.

The general visitor may also elect to access the Reference Zone 470, having the areas Encyclopedia of Dental Information 471, Ask a Dentist 472, Listing of Dentists 473, and Events 474. These may be the same as or different from areas identified as Encyclopedia of Dental Information 203, 322, Ask a Dentist 324, Listing of Dentists 204, 326, and Events 205, 328. It may be desirable to provide more limited information in the general visitor entry point than that which is accessible via the dentist entry point 100 or patient entry point 300 to provide an incentive for the visitor to join and acquire an authorization code through a member dentist.

The general visitor may also visit Pharmacy Zone 480, Search 485, or Help 490. These may be the same as or different from those areas previously identified as Pharmacy Zone 206, 330, Search 170, 340, and Help 180, 350.

In operation, a dentist becomes a member by providing a first predetermined payment in exchange for provision of a dentist authorization code



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and the requisite access provided by that code. Single payments and periodic payments are contemplated by the invention. This payment allows the dentist to access information via the member dentist entry point 100 and to input a predetermined number of patient dental records into a database associated with the web site. Membership also provides an e-mail address for the member dentist and a home page for the dentist. The dentist home page may be modified as desired by the dentist. Such modifications to the dentist home page could include directions to the dentist's office, photographs of the dentist's office or office equipment, and dental-related news items. It is contemplated that additional payments may be required to access particular additional services, particularly content that may be provided from external sources.

Once the member dentist has entered one or more patient dental records into the database, the member dentist has full access to the Patients 110 section through the member dentist entry point 100. If the member dentist desires to input a greater number of patient dental records than is provided for by the first predetermined payment, then additional predetermined payments may be made in exchange for input of additional predetermined numbers of patient dental records. Information regarding registering to become a member dentist is available through the How To Register 402 area.

When the member dentist makes a new entry into the patient dental record, such as to document a general exam or to lay out a course of treatment, the member dentist may specify the users that will have access to that entry. Further, the member dentist may designate that an e-mail message be automatically generated and sent to the patient when preselected fields in the patient dental record are edited or new entries made. Thus, if a first member dentist is collaborating with a second member dentist, the first member dentist may specify that the second member dentist may access the new entry, but that no

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others are allowed access to that entry. This is an improvement over current dental record management practice with hard copy records, in which the dentist may selectively disclose portions of a patient dental record with another dentist via the mail or by fax, by providing the capability to maintain the record and  
5 instantaneously share selected information by remote access to a single database via the internet.

Further, the web site and database access allows multiple users to simultaneously access the same patient dental record via the internet to facilitate collaboration. This feature allowing simultaneous access to a patient dental  
10 record by multiple users who are geographically remote from each other and from the database also provides for improved dental care when the patient is away from his or her regular dentist, such as on vacation. This allows the treating dentist and the regular dentist to more effectively coordinate the care of the patient in the event of a dental emergency because the treating dentist could have  
15 access to the patient dental record via the internet.

When the member dentist allows entries to be made by other dental or medical professionals to the patient dental record, the other dental professional who authors the entry may designate the users who will have access to that entry. Thus, the author may designate that the patient have access to the  
20 particular entry, or that only other members of the IDT team have access to view the entry, or that only the original member dentist who input the record would have access to the entry. Preferably, the member dentist who originally entered the patient dental record will have access to all entries, and, preferably, may also designate users who may access any entry.

25 If the member dentist who originally inputs the patient dental record and subsequent entries to the record is a member of an IDT team, then the member dentist will allow other IDT team members to access to record for which

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the IDT treatment has been initiated. Allowing several dental professionals to access and to make entries into the same patient dental record allows for more effective coordination of patient treatment. because all members of the IDT team access the same record, each member of the IDT team has the same information as all other members of the IDT team. This is a significant improvement over current patient dental record management practices in which hard copies of patient dental records must be transmitted to team members for each to have the same records.

Once a dentist has become a member dentist, the member dentist may provide a patient authorization code to a patient which allows the patient to access the patient dental record associated with that dental authorization code without any payment by the patient. Each patient dental record has an associated patient authorization code. After the patient user enters the patient authorization code at the patient entry point 300, the patient user is directed to the home page (not shown) of the member dentist who provided the patient authorization code. From there, the patient user then has access to the features available through the patient entry point 300.

It will be apparent to one with skill in the art that a variety of hardware and software are presently available in the art to accomplish the features invention. The specific equipment and software used may be any that is suitable to accomplish the objectives as dictated by the individual circumstances of use.

Specific sections and areas of the preferred embodiment as set forth herein may be added or deleted to meet particular circumstances without departing from the spirit and scope of the invention. The specific content in each section and area also may be modified depending on specific circumstances without departing from the spirit and scope of the invention. The specific relationships regarding location of information within the web site as shown in

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Figures 1 through 9 may also be modified without departing from the spirit and scope of the invention.

It will be apparent to those of skill in the art that the present invention is susceptible of broad utility and application. Although various  
5       embodiments of this invention have been shown and described, it should be understood that various modifications and substitutions, as well as rearrangements and combinations of the preceding embodiments, can be made by those skilled in the art, without departing from the novel spirit and scope of this invention. Accordingly, it is intended by the appended claims to cover all such  
10       changes and modifications as come within the spirit and scope of the invention.

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We claim:

1. A method of managing patient dental records in a computer database by way of remote access via a global computer network, comprising the steps of:
  - 5 a. creating a computer database of at least one patient dental record having a plurality of fields, the database being accessible for viewing and editing via a global computer network;
  - b. associating a unique patient authorization code with each patient dental record;
  - 10 c. allowing patient access to a particular patient dental record by entry of the associated unique patient authorization code;
  - d. associating a unique dentist authorization code with a dentist accessing the database; and
  - 15 e. providing dentist access to one or more patient dental records in the database by entry of the unique associated dentist authorization code.
2. The method of claim 1, wherein the step of providing dentist access comprises allowing input of diagnostic and treatment information as an entry to at least one patient dental record.
- 20 3. The method of claim 2, wherein the diagnostic and treatment information is input from documents generated by a local word processing program.
4. The method of claim 2, wherein the diagnostic and treatment information is generated by freehand typing directly into the database via the global computer network.
- 25 5. The method of claim 2, wherein the diagnostic information is selected from at least one predetermined diagnostic option available from a menu of diagnostic options provided to the dentist.

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6. The method of claim 2, wherein the diagnostic information includes image data.
7. The method of claim 6, wherein the image data is of any available image format.
- 5 8. The method of claim 2, wherein the step of providing dentist access further comprises enabling access to at least one entry in the patient dental record by more than one dentist simultaneously.
9. The method of claim 2, wherein the step of providing dentist access comprises:
  - 10 a. remotely searching at least one field of an individual patient dental record in the database for text matching an input text;
  - b. identifying at least one matched entry as the at least one entry containing the text matching the input text;
  - 15 c. retrieving all matched entries for display on a display terminal from a point of remote access.
10. The method of claim 1, wherein the step of providing dentist access comprises allowing input of a new patient dental record.
11. The method of claim 1, wherein the step of providing dentist access comprises allowing input of billing information into the patient dental record.
- 20 12. The method of claim 11, wherein the billing information includes charges for services rendered, charges submitted for insurance payment, and patient payment schedule and history.
13. The method of claim 1, wherein the step of providing dentist access comprises:
  - 25 a. remotely searching the patient dental records in the database for text matching an input text;

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- b. identifying a matched dental record as a patient dental record containing the text matching the input text;
  - c. retrieving the matched dental record for display on a display terminal from a point of remote access;
  - 5 d. editing the matched dental record;
  - e. storing the edited matched dental record in the computer database; and
  - f. terminating the remote access.
14. The method of claim 1, wherein the step of allowing patient access to a particular patient dental record comprises allowing the patient to view the patient dental record corresponding to the unique patient authorization code entered by the patient.
- 10 15. The method of claim 1, wherein the step of allowing patient access to a particular patient dental record comprises allowing the patient to edit selected fields in the patient dental record corresponding to the unique patient authorization code entered by the patient.
- 15 16. The method of claim 15, wherein the selected fields include personal information and insurance information.
17. The method of claim 1, wherein the step of allowing patient access to a particular patient dental record comprises enabling the patient to request an appointment with the dentist.
- 20 18. The method of claim 1, wherein the step of allowing patient access to a particular patient dental record comprises enabling the patient to request a prescription from the dentist.
- 25 19. The method of claim 1, further comprising the step of automatically sending an e-mail to an e-mail address provided by the patient to notify the patient when preselected fields in the patient dental record are edited.

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20. The method of claim 1, further comprising the step of placing date stamps on edits of the patient dental record.
21. The method of claim 20, further comprising sorting edits of the patient dental record according to the corresponding date stamps.
- 5 22. A method of providing patient access, viewing, and editing of a patient dental record in a dental record computer database comprising the steps of:
- a. allowing provision of a patient password to a patient;
- b. enabling access to the database by the patient via a global  
10 computer network by input of the patient password when prompted by the database;
- c. automatically retrieving a patient dental record associated with the patient password entered;
- d. enabling edit by the patient of predetermined portions of the  
15 patient dental record.
23. A method of providing a dental care website having a dentist zone and a patient zone, accessible via a global computer network, comprising:
- a. creating a computer database of at least one patient dental record having a plurality of fields, the database being accessible for  
20 viewing and editing via a global computer network;
- b. associating a unique patient authorization code with each patient dental record;
- c. allowing patient access by a patient to the patient zone with the entry of the unique patient authorization code;
- 25 d. associating a unique dentist authorization code with each dentist accessing the database;



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- e. providing dentist access by a dentist to the dentist zone by entry of the unique dentist authorization code.
24. The method of claim 23, wherein the step of providing dentist access to the dentist zone comprises allowing the dentist to access at least one patient dental record.
- 5
25. The method of claim 24, wherein the access to at least one patient dental record comprises entering diagnostic and treatment information.
26. The method of claim 23, wherein the step of providing dentist access to the dentist zone comprises enabling the dentist to enter a new patient dental record.
- 10
27. The method of claim 23, wherein the dentist zone comprises one or more functions selected from the group consisting of reference information, continuing education, and patient services.
28. The method of claim 23, wherein the dentist zone comprises information necessary to coordinate Interdisciplinary Dentofacial Therapy treatment.
- 15
29. The method of claim 23, wherein the step of providing dentist access to the dentist zone provides an interactive diagnosis and treatment guide database .
30. The method of claim 29, wherein the interactive diagnosis and treatment guide database is operative to:
- 20
- a. enter at least one symptom selected from a predetermined list of symptoms;
  - b. automatically search the diagnosis and treatment guide database for diagnosis and treatment records matching the at least one symptom entered;
- 25
- c. identify to the dentist the diagnosis and treatment records matching the at least one symptom entered;

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- d. automatically generate at least one query based on the diagnosis and treatment records found;
  - e. enter an answer to the at least one query selected from a predetermined list of answers;
  - 5 f. automatically search the diagnosis and treatment guide database for diagnosis and treatment records matching the answer entered;
  - g. identify to the dentist the diagnosis and treatment records matching the answer entered; and
  - h. repeat steps e, f, and g as desired.
- 10 31. The method of claim 23, further comprising the step of enabling communication between the patient and the dentist.
32. The method of claim 23, wherein the step of allowing patient access comprises allowing the patient to view the patient dental record associated with the unique patient authorization code.
- 15 33. The method of claim 23, wherein the step of allowing patient access comprises allowing the patient to edit preselected fields in the patient dental record associated with the unique predetermined patient authorization code.
34. The method of claim 23, wherein the patient zone comprises one or more features selected from the group consisting of patient general chart, reference information, and pharmacy information.
- 20 35. A method of creating and storing patient dental records in a computer database by way of remote access via a global computer network, comprising the steps of:
- 25 a. creating at least one patient dental record having at least one text field and at least one image field;
  - b. inputting text into the at least one text field;

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- c. inputting at least one image into the at least one image field;
  - d. enabling access to designated fields by selected users of the database; and
  - e. storing the at least one patient dental record in the computer database via the global computer network.
- 5
36. A method of retrieving and editing patient dental records having at least one text field in a computer database by way of remote access via a global computer network, the database having multiple access levels with associated access codes, comprising the steps of:
- 10 a. entering a predetermined access code to enable text searching;
  - b. remotely searching the at least one text field for text matching an input text;
  - c. identifying a matched dental record as the patient dental record containing the text matching the input text;
  - 15 d. retrieving the matched dental record for display on a display terminal from a point of remote access;
  - e. editing the matched dental record;
  - f. storing the edited matched dental record in the computer database; and
  - 20 g. terminating the remote access.
37. A method of conducting a business of providing access to patient dental records in a computer database by remote access via a global computer network, comprising the steps of:
- 25 a. creating a computer database for at least one patient dental record having at least one text field and at least one image field, each patient dental record being associated with a single patient;

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- b. providing availability for a dentist to input and access a preselected number of patient dental records in exchange for a first predetermined payment; and
  - c. providing availability for the dentist to input and access additional preselected numbers of patient dental records in exchange for additional predetermined payments.
- 5
38. The method of claim 37, further comprising the step of providing access by the patient to the patient dental record associated with that patient without any payment.
- 10 39. The method of claim 37, further comprising the step of providing additional features accessible by remote access via a global computer network to the dentist in exchange for additional predetermined payments.
40. A computer system for accessing patient dental records in a computer database by remote access via a global computer network, comprising:
- 15 a. a computer database of at least one patient dental record having at least one text field and at least one image field;
- b. a first remote access code providing a first level of remote access to the computer database via the global computer network, the first level of remote access being an unrestricted access;
- 20 c. a second remote access code providing a second level of remote access to the computer database via the global computer network, the second level of remote access being a restricted access;
- d. a search engine for searching the at least one text field for a matched record having text matching an input text; and
- 25 e. a remote display terminal to display the matched record.
41. A method of providing a web site for dental professionals, their patients, and others having an interest in dental-related topics, comprising the steps

of allowing access by an individual dental professional to a plurality of patient dental records; and allowing access by a patient to a single patient dental record; the web site comprising:

- 5           a.       a dental zone for dental professionals, comprising:
  - i.       access to one or more patient dental records;
  - ii.      means for entry of new patient dental records;
  - iii.     diagnosis and treatment guide;
  - iv.     patient financial information;
  - v.      reference information;
  - 10       vi.    means for communication with a patient;
- b.       a patient zone for patients of dental professionals, comprising
  - i.       limited access to the patient dental record for that patient;
  - ii.      patient financial information;
  - iii.     a database for dental self-care topics;
  - 15       iv.    a database for dental treatment topics;
  - v.      a list of dental professionals;
  - vi.      means for communication with a dentist; and
- c.       a general zone, comprising
  - i.       information regarding the web site;
  - 20       ii.    a database of dental-related information.

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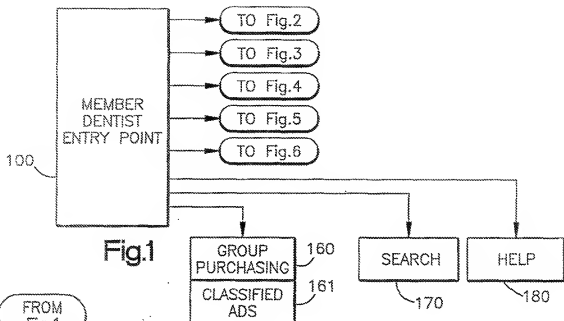


Fig.1

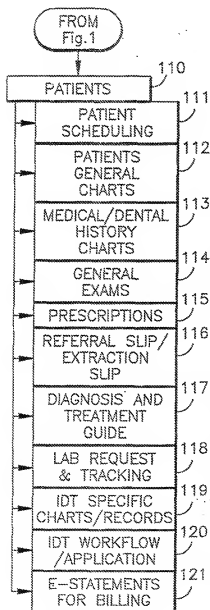


Fig.2

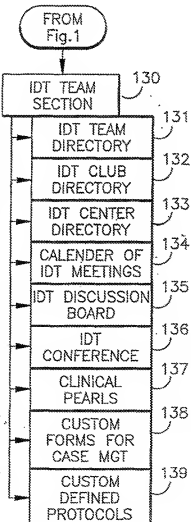


Fig.3

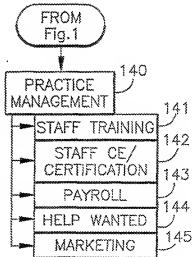


Fig.4

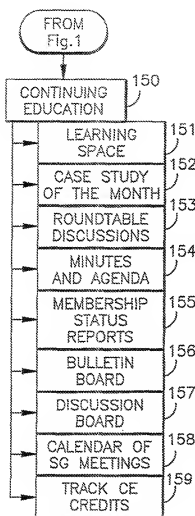


Fig.5

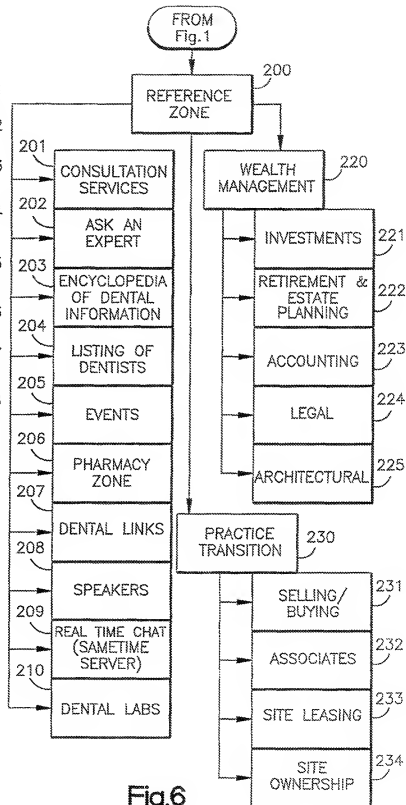


Fig.6

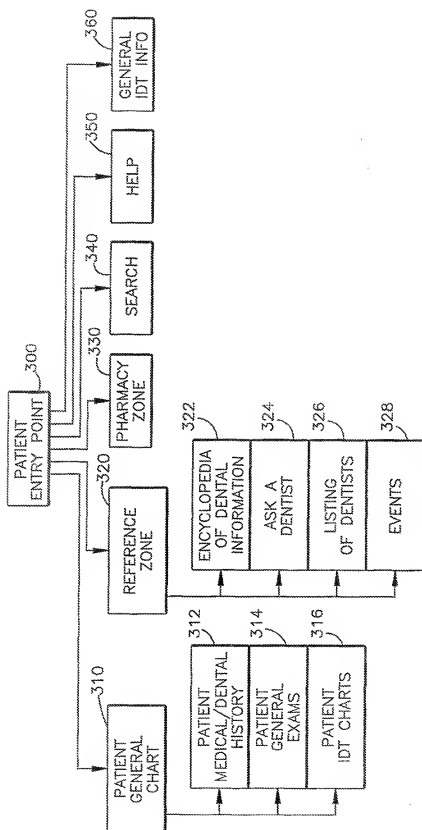


Fig.7



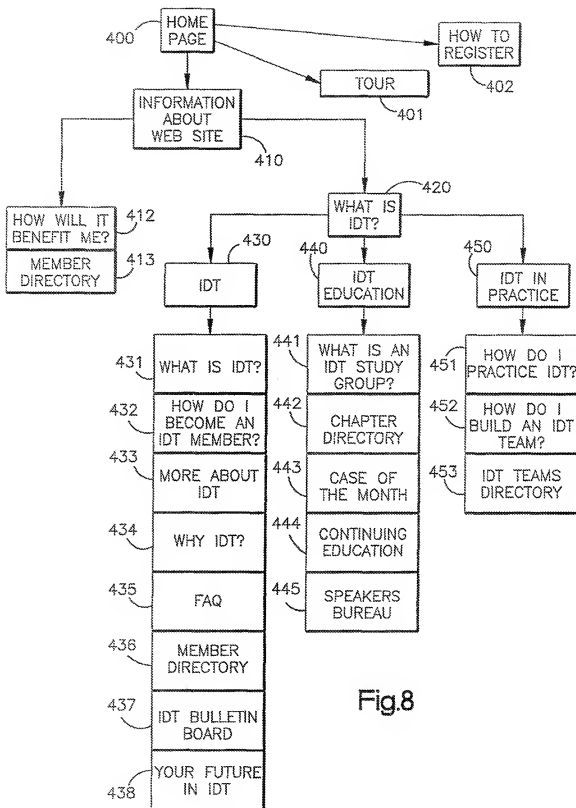


Fig.8

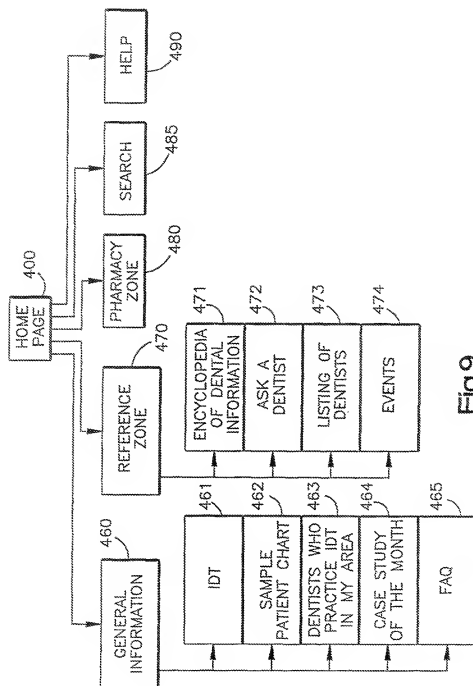


Fig.9